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**PATENT ABSTRACTS OF JAPAN**(21) Application number: **05145823**(51) Intl. Cl.: **B01D 63/02 B01D 65/02**(22) Application date: **17.06.93**

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publication: **06.01.95**(84) Designated contracting  
states:(71) Applicant: **TOSHIBA CORP**(72) Inventor: **ITO KIYOSHI**

(74) Representative:

**(54) HOLLOW-FIBER  
MEMBRANE FILTER AND  
ITS CLEANING METHOD**

(57) Abstract:

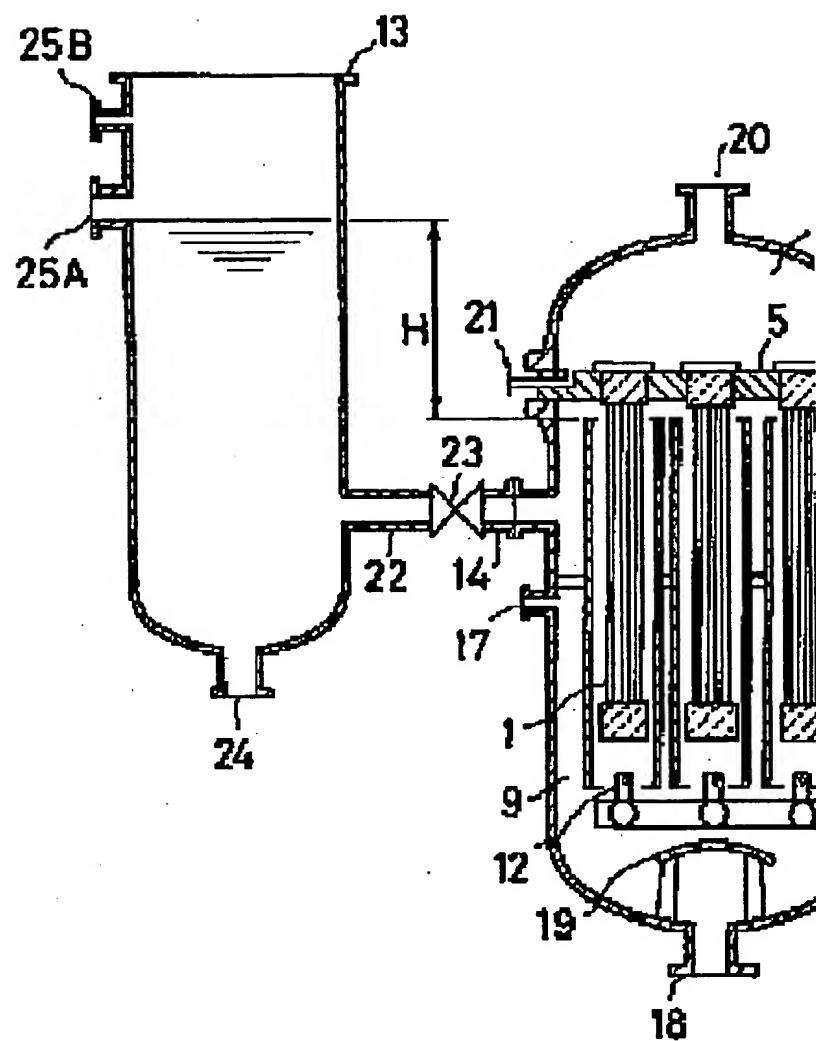
**PURPOSE:** To obtain a hollow-fiber membrane filter with the differential pressure recovery rate enhanced and the service life prolonged and capable of filtering even a difficult-to-filtrate water.

**CONSTITUTION:** A filter 11 is divided by a tube plate 5 into a treated water section 6 and a filtration water section 7. A hollow-fiber membrane module 1 formed by bundling many hollow-fiber membranes is suspended from the tube plate 5. The treated water section 6 is divided by a partition plate 10 into an upper section 8 and a lower section 9. A cylinder 3 for protecting the module 1 is fixed to the partition plate 10. A bubble injection nozzle 12 is provided below the cylinder 3. A head tank 13 communicating with the upper section 8 and having a head

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difference H from the upper end of the cylinder 3 to about 1/2 of the length of the membrane 1 is furnished.

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